

## ABSTRACT

Provides a dry-type high-voltage load system apparatus having a space-saving structure, which is resistant to chain breaking, arc discharge and vibration, and a method of preventing the chain breaking and the arc discharge for use with the system apparatus. The system apparatus includes a dry-type high-voltage load system circuit comprising: a low-voltage bank composed of lower-capacity configuration banks for a low-voltage resistor circuit composed of three-phase resistor circuits; and a high-voltage bank composed of lower-capacity configuration banks for a high-voltage resistor circuit composed of three-phase resistor circuits, both of the three-phase resistor circuits connected to a high-voltage power generator in parallel, wherein each of the three-phase resistor circuits is composed of resistor arrays in three phases, each of the resistor arrays composed of resistor elements connected in series, in the form of a Y-connection in which three of the resistor arrays are concentrated for reconciliation of their phase so that an isolated and independent neutral point unconnected commonly to those of the other three-phase resistor circuits is formed, or in the form of a Δ-connection in which nodes are provided for each phase, each of the resistor element comprising: an outer tube made of metal in a cylindrical shape; and high-voltage proof insulating sleeves extractably encasing and anchored in the portions adjacent to both ends of the outer tube penetratingly bridging between arrangement boards.